PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43*bis*.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/US2005/008804	16.03.2005	16.04.2004

International Patent Classification (IPC) or both national classification and IPC
G06F9/44, G06T1/00, G06T15/00

Applicant
APPLE COMPUTER, INC.

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☒ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☐ Box No. V Reasoned statement under Rule 43*bis*.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notifed the International Bureau under Rule 66.1*bis*(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

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Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

   ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

   a. type of material:

   ☐ a sequence listing

   ☐ table(s) related to the sequence listing

   b. format of material:

   ☐ in written format

   ☐ in computer readable form

   c. time of filing/furnishing:

   ☐ contained in the international application as filed.

   ☐ filed together with the international application in computer readable form.

   ☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

Box No. II Priority

1. ☒ The validity of the priority claim has not been considered because the International Searching Authority does not have in its possession a copy of the earlier application whose priority has been claimed or, where required, a translation of that earlier application. This opinion has nevertheless been established on the assumption that the relevant date (Rules 43*bis*.1 and 64.1) is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43*bis*.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. Additional observations, if necessary:

Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

The questions whether the claimed invention appears to be novel, to involve an inventive step (to be non obvious), or to be industrially applicable have not been examined in respect of:

☐ the entire international application,

☒ claims Nos. 1-85

because:

☐ the said international application, or the said claims Nos. relate to the following subject matter which does not require an international preliminary examination *(specify)*:

☒ the description, claims or drawings *(indicate particular elements below)* or said claims Nos. 1-85 are so unclear that no meaningful opinion could be formed *(specify)*:

see separate sheet

☐ the claims, or said claims Nos. are so inadequately supported by the description that no meaningful opinion could be formed.

☐ no international search report has been established for the whole application or for said claims Nos.

☐ the nucleotide and/or amino acid sequence listing does not comply with the standard provided for in Annex C of the Administrative Instructions in that:

the written form ☐ has not been furnished

☐ does not comply with the standard

the computer readable form ☐ has not been furnished

☐ does not comply with the standard

☐ the tables related to the nucleotide and/or amino acid sequence listing, if in computer readable form only, do not comply with the technical requirements provided for in Annex C-*bis* of the Administrative Instructions.

☒ See separate sheet for further details

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Re Item III

Non-establishment of opinion with regard to novelty, inventive step and industrial applicability

1 Document

1.1 Reference is made to the following documents:

D1: US-A-5 490 246 (BROTSKY ET AL) 6 February 1996
D2: WO 98/45815 A (INTERGRAPH CORPORATION) 15 October 1998
D3: US-B1-6 272 558 (HUI JONATHAN ET AL) 7 August 2001
D4: EP-A-0 694 879 (CANON KABUSHIKI KAISHA; CANON INFORMATION SYSTEMS RESEARCH AUSTRALIA P) 31 January 1996

2 Conciseness and Clarity of claims 1, 22, 28, 43, 48, 63, 74, 75, 79, 84 and 85, Article 6 PCT

2.1 The present set of claims comprise multiple independent claims in the same category: claims 1, 28, 43, 58, 63,74 and 75 are method claims and claims 22, 79, and 84 are apparatus claims.
Said method claims each introduce at least one feature not present in the other claims:
- Claim 1: running a portion of a compiled program to apply a function of a filter to an image.
- Claim 28: compiling a graph.
- Claim 63: requesting performance of a task through one or more function calls.
- Claim 74: rendering occurring on a GPU.
- Claim 75: Resolving a first node in said first graph by running software routine on a CPU.
Similar considerations apply to the apparatus claims.

2.2 It is clear from the PCT that the invention for which protection is sought must be clearly defined in the claims (Article 6) and that such a definition is accomplished by specifying all essential technical features in each independent claim (Rule 6.3 PCT).

It follows that when, as in this case, only one invention is disclosed and a technical feature is included in one independent claim but there is no equivalent in another independent claim, it is not clear what technical features are actually necessary for defining the invention, thus putting the matter for which protection is sought in doubt and in violation of Article 6.

2.3 Furthermore a PCT application may contain more than one independent claim in a particular category only if the subject matter claimed falls within one or more of the exceptional situations set out in the PCT guidelines Part II, 5.14 (1-3).

2.4 The best formulation for the set of claims would have been with only one independent method claim, a corresponding apparatus claim and a corresponding computer readable medium claim.

2.5 Claim 28 includes all the features of claim 43 and claim 58 contains all the features of claim 63. Hence, claim 28 should have been formulated as a claim dependent on claim 42 and claim 58 as claim dependent on claim 63 (cf. Rule 6.4 (a) PCT).

2.6 In claim 75 the expression "determining an interaction of the first graph's global domain of the definition and global region of interest" is obscure and unclear and leave the reader in doubt to what technical feature it refers in contrast with the requirement of clarity of Article 6 PCT.

2.7 When considering the extent of the above conciseness and clarity objections raised under the provision of Art. 6 PCT concerning the present set of claims, it is not considered feasible at the present stage of the procedure to give an opinion with regard to the requirements of Novelty, Inventive Step and Industrial Applicability as set out in Art. 33 (2), (3) and (4) PCT.

3 Brief summary of the prior art

3.1 According to the description, it appears that the present application is directed to a system for producing images including an application programming interface. The application programming interface permits the creation of new images, new

filters or to apply different manipulation to pre-stored images (page 14, paragraph 57 to page 18, paragraph 64). Images are treated by defining relationships between filters and images. These relationships are implemented in the form of a graph-like description of an image task (page 3, paragraph 8) in which the nodes are images and intermediate image results and the arrows are operations applied to the images (filter). The operational graph is optimized to produce a program that applied to the initial image produce a final images (page 4, paragraph 10). This technique is applied in multi processor environment. Moreover, it appears that the system of the present application provides the technical advantages of proposing a graphical abstraction layer usable by different application that hides the complexity of graphics hardware (page 2, paragraph 5), therefore solving the problem of providing a graphical environment easily understandable and operable.

3.2 Document D1, D2, D3 and D4 are provisionally considered to represent the most relevant state of the art, disclose:
D1: a system in which a graph representing an image construction process is built, compiled, optimized and launched in order to obtain a result image.
D2: an application programming interface for applying effect on images and render the result in a memory buffer.
D3: a system to provide an application programming interface for manipulating and creating images via filters.
D4: a system for composing and creating images by forming an expression tree (graph), parsing, optimizing and running the result program to obtain a final image.

3.3 Therefore, It would appear that a combination of the features of D1 with the features of D2 or D3 would produce a system that would have the same advantages of the system of the present application of hiding the complexity of the graphics hardware via an intermediate layer (API) and solving the problem of providing an easy operable graphical environment.

Re Item VII

Certain defects in the international application

4 Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art

disclosed in documents D1, D2, D3 and D4 are not mentioned in the description, nor are these documents identified therein.

4.1 All independent claims should have been in the two-part form in accordance with Rule 6.3(b) PCT.

4.2 The features of the claims should have been provided with reference signs placed in parentheses (Rule 6.2(b) PCT).